

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	

**COMMENTS of ADTRAN, INC.**

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### *Summary*

As the Commission recognized in the *USF/ICC Transformation Order*, the United States can ill-afford to subsidize multiple broadband providers in a territory, nor would we want to subsidize a broadband provider in an area already being served by an unsubsidized competitor. However, if that competitor is providing a “broadband” service that falls short of the Commission’s standards, or is incapable of providing the requisite level of service throughout the territory, then deeming that area ineligible for funding under the CAF Phase II support program would mean that the people and businesses in that area will not truly have access to broadband service, and would be unlikely ever to do so. Therefore, it is critical that the Commission prescribe the standards for determining whether the service being offered by an unsubsidized competitor constitutes “broadband.”

The standards for “broadband” for purposes of CAF Phase II should not be defined simply in terms of speed/throughput. While the speed/throughput is certainly important, the Commission also needs to establish standards for latency, capacity/usage and coverage, because all four factors will affect the users’ experience and ability to access services and applications. ADTRAN endorses the use of the 4 Mbps download and 1 Mbps upload minimum speed for CAF Phase II. In addition, ADTRAN supports a latency requirement of two-way delay in the access network of no more than 100 ms. For capacity, ADTRAN concurs in the *Public Notice*’s suggestion of no less than a 100 GB monthly minimum usage allowance. The service must also be available to serve customers throughout the territory, so that geographic constraints for wireless services or capacity constraints should disqualify such services. Finally, ADTRAN believes that compliance with these standards must be verified through a consistent, robust and rigorous testing process.



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ADTRAN, Inc. (“ADTRAN”) hereby addresses some of the questions raised in the Commission’s Public Notice seeking comment on issues regarding service obligations for Connect America Phase II and determining who is an “unsubsidized competitor.”<sup>1</sup> As the Commission recognized in the *USF/ICC Transformation Order*, we can ill-afford to subsidize multiple broadband providers in a territory, nor would we want to subsidize a broadband provider in an area already being served by an unsubsidized competitor.<sup>2</sup> However, if that competitor is providing a service that falls short of the Commission’s standards, or is incapable of providing the requisite level of service throughout the territory, then deeming that area

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<sup>1</sup> *Connect America Fund*, Public Notice, DA 13-284, released February 26, 2013 (hereafter cited as “*Public Notice*”).

<sup>2</sup> *E.g.*, *USF/ICC Transformation Order*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663 (Nov. 18, 2011) (“*USF/ICC Transformation Order*”) at ¶ 319:

We acknowledge that in the past the Commission concluded that universal service subsidies should be portable, and allowed multiple competitive ETCs to receive support in a given geographic area. Based on the experience of a decade, however, we conclude that this prior policy of supporting multiple networks may not be the most effective way of achieving our universal service goals. In this case, we choose not to subsidize competition through universal service in areas that are challenging for even one provider to serve.



ineligible for funding under the CAF Phase II subsidy program would mean that the people and businesses in that area will not truly have access to broadband service, and would be unlikely ever to do so. Therefore, as ADTRAN explains in these comments, it is critical that the Commission be able to discern whether the “unsubsidized competitor” is actually offering an adequate service throughout the territory.

ADTRAN, founded in 1986 and headquartered in Huntsville, Alabama, is a leading global manufacturer of networking and communications equipment, with an innovative portfolio of solutions for use in the last mile of today’s telecommunications networks. ADTRAN’s equipment is deployed by some of the world’s largest service providers, as well as distributed enterprises and small and medium businesses. Importantly for purposes of this proceeding, ADTRAN solutions enable voice, data, video and Internet communications across copper, fiber and wireless network infrastructures. ADTRAN thus brings an expansive perspective to this issue.

### ***Defining “Broadband” for Purposes of the CAF Phase II Model***

ADTRAN concurs with the Commission’s determination in the *USF/ICC Transformation Order* that we can no longer afford to subsidize multiple service providers in the same area. Moreover, it is not clear that consumers see much in the way of benefits from any artificial competition such a subsidy program theoretically produces. And in any event, it would certainly not be a “level playing field” if an unsubsidized service provider had to face competition from a subsidized new entrant. Thus, ADTRAN agrees that the CAF Phase II support program should



not subsidize the deployment of broadband service in an area already served by an unsubsidized broadband provider.

On the other hand, if the so-called “broadband” service being offered by the unsubsidized provider is inadequate to allow subscribers to enjoy the manifold benefits of broadband – including remote learning, telehealth, communication and entertainment – then a failure to provide CAF Phase II support in those areas is likely to relegate those consumers to “second class” broadband for the foreseeable future – an intolerable situation. Indeed, as the National Broadband Plan recognized: “Until recently, not having broadband was an inconvenience. Now, broadband is essential to opportunity and citizenship.”<sup>3</sup> It thus becomes critical for the Commission to establish appropriate standards for what constitutes “broadband” for purposes of determining whether the service already being offered suffices so as to obviate the need for CAF Phase II support.

At the same time, ADTRAN believes that “broadband” service for purposes of CAF Phase II should be similarly determined both for purposes of excluding already served territories, as well as the level of service that the supported provider must offer. The *Public Notice* raises this issue in Paragraph 9, when it asks:

If we were to determine the presence of an unsubsidized competitor based on a 6 Mbps/1.5 Mbps threshold, to create parity between unsubsidized competitors and Phase II buildout requirements, should we also require that Phase II support recipients be required to provide broadband with speeds of 6 Mbps/1.5 Mbps to all supported locations?

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<sup>3</sup> *National Broadband Plan*, March, 2010, Chapter 1 at p. 5, available at <http://download.broadband.gov/plan/national-broadband-plan.pdf>.



It is not merely a matter of parity or fairness, however. Rather, the parameters for defining “broadband” for purposes of CAF Phase II should be set based on the levels necessary to provide customers with the opportunity to enjoy the services and applications commonly accessed by subscribers now and into the foreseeable future.<sup>4</sup> Thus, setting the speed the same for both makes sense. On the other hand, the Commission must recognize that there is a cost to setting the speed higher than necessary, and that the limited funds for supporting broadband deployment could cause the “perfect” to become the enemy of the “good” – while in an ideal world everyone would have access to 1 Gbps broadband, that is a luxury we cannot afford to subsidize.

In addition, ADTRAN believes that standards for “broadband” service for purposes of CAF Phase II should not be defined simply in terms of speed/throughput. While the speed/throughput is certainly important, the Commission also needs to establish standards for latency, capacity/usage and coverage, because all four factors will affect the users’ experience and ability to access services and applications. We discuss suggested standards for each of these four factors below:

### ***Speed/Throughput***

One of the primary characteristics affecting the user’s experience is the speed or throughput capability of the broadband access connection. As an initial matter, the Commission needs to specify a definition of speed/throughput so that there is a clear understanding of what must be provided, because there can be varying definitions for the general concept of broadband

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<sup>4</sup> ADTRAN recognizes that some relaxation of the standards may be necessary for some remote and insular consumers, however, given the exceedingly high cost of providing service to these locations. Thus, ADTRAN does not object to different standards for “broadband” for purposes of the Remote Area Fund. *See, e.g., USF/ICC Transformation Order* at ¶ 134.



speed/throughput – *e.g.*, advertised speed, peak speed, *etc.* ADTRAN suggests that the Commission define speed/throughput based on a sustainable data rate, that is, a rate that will be experienced by individual subscribers with a high probability even during times of heavy usage.

ADTRAN urges the Commission to specify minimum speed/throughput levels for defining “broadband” for purposes of CAF Phase II that will allow subscribers to be able to enjoy services and applications that most current broadband subscribers expect, including communications, web-surfing, entertainment, interactive applications, distance learning, telehealth and civic involvement. The National Broadband Plan suggested a minimum standard of 4 Mbps download speed and 1 Mbps upload speed:

Ensuring all people have access to broadband requires the Federal Communications Commission (FCC) to set a national broadband availability target to guide public funding. An initial universalization target of 4 Mbps of *actual* download speed and 1 Mbps of *actual* upload speed, with an acceptable quality of service for interactive applications, would ensure universal access.

This represents a speed comparable to what the typical broadband subscriber receives today, and what many consumers are likely to use in the future, given past growth rates. While the nation aspires to higher speeds as described in Chapter 2, it should direct public investment toward meeting this initial target. (footnotes omitted)<sup>5</sup>

Building on the analyses of the National Broadband Plan, the Commission in the *USF/ICC Transformation Order* adopted the 4 Mbps/1 Mbps speed/throughput standard for supported broadband services:

In the past two Broadband Progress Reports, the Commission found that the availability of residential broadband connections that actually enable an end user to download content from the Internet at 4 Mbps and to upload such content at 1 Mbps over the broadband provider’s network was a reasonable benchmark for the availability of “advanced telecommunications capability,” defined by the statute as “high-speed, switched, broadband telecommunications capability that enables users to originate and receive

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<sup>5</sup> National Broadband Plan, March, 2010, Chapter 8 at p. 135, available at <http://download.broadband.gov/plan/national-broadband-plan.pdf>.



high-quality voice, data, graphics, and video telecommunications using any technology.” This conclusion was based on the Commission’s examination of overall Internet traffic patterns, which revealed that consumers increasingly are using their broadband connections to view high-quality video, and want to be able to do so while still using basic functions such as email and web browsing. The evidence shows that streaming standard definition video in near real-time consumes anywhere from 1-5 Mbps, depending on a variety of factors. This conclusion also was drawn from the National Broadband Plan, which, based on an analysis of user behavior, demands this usage places on the network, and recent experience in network evolution, recommended as a national broadband availability target that every household in America have access to affordable broadband service offering actual download speeds of at least 4 Mbps and actual upload speeds of at least 1 Mbps.

Given the foregoing, other than for the Phase I Mobility Fund, we adopt an initial minimum broadband speed benchmark for CAF recipients of 4 Mbps downstream and 1 Mbps upstream. Broadband connections that meet this speed threshold will provide subscribers in rural and high cost areas with the ability to use critical broadband applications in a manner reasonably comparable to broadband subscribers in urban areas.<sup>6</sup> (footnotes omitted)

ADTRAN believes that for the foreseeable future, the Commission should continue to use 4 Mbps download and 1 Mbps upload as the CAF Phase II standard, and that this should apply both to the minimum to be provided by a subsidized provider, and for assessing whether an unsubsidized competitor is already providing broadband service for purposes of excluding territory.<sup>7</sup>

On the other hand, ADTRAN encourages the Commission to commit to revisiting this issue in four years. Broadband usage follows a “virtuous cycle” in which increased availability of high speed services facilitates the development of new applications that take advantage of those higher speeds, which in turn facilitates the adoption of higher speed services by more and

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<sup>6</sup> *USF/ICC Transformation Order* at ¶¶ 93-94.

<sup>7</sup> *Cf.*, *Public Notice* at ¶ 9, asking whether the speed/capacity threshold of 6 Mbps/1.5 Mbps category from the National Broadband Map should be used instead to set the minimums for both purposes. ADTRAN believes the additional cost of increasing the minimum speeds would not be worth the tradeoff, given the limits on the size of the CAF Phase II fund.



more subscribers. At this point in time, Over-The-Top (OTT) video comprises over half of consumer Internet traffic and it is widely considered to be the “killer application” driving traffic volumes, but OTT video by itself does not require higher rates than those currently envisioned for the Connect America Fund. However, one cannot discount the possibility of a new and increasingly necessary application enabled by higher service rates at some point in the near future. If and when that possibility proves itself, the Commission should respond accordingly.

### *Latency*

While the speed/throughput is a critical factor in the users’ experience, it is not the only factor that determines whether the subscribers will be able to use the services and applications made possible by “broadband” access. The latency associated with the network connection is equally important, and in many cases more so, for interactive applications requiring response times that should be perceived by the user as instantaneous. Even for non-real time applications such as web browsing, small additions to network latency can have a multiplicative effect that results in latency, and not speed, frequently being the dominant factor in web page download times. Thus, the Commission must also establish standards for latency that will determine whether the service offered by an unsubsidized competitor should qualify as “broadband” in order to exclude that territory from support under CAF Phase II.

The delay on an end-to-end transmission will be due to delays in the access and core (or Internet backbone) segments of the network, which have different causes.<sup>8</sup> The Internet access

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<sup>8</sup> A much more detailed discussion of latency as a component of defining broadband is set forth in ADTRAN’s White Paper, “Defining Broadband: Network Latency and Application Performance,” attached to Letter from Stephen L. Goodman, Counsel for ADTRAN, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 09-51 (filed June 23, 2009).



service provider generally has control only over the access network, and not the core network. Delay in the core is due to speed-of-light propagation and to switching/routing delays, and is relatively stable. Delay in the access network is due to factors related to speed/capacity of the “last mile” connection, and to the technologies and protocols used to bridge the “last mile” to the subscriber, and is much more variable.

The “last mile” of the access network frequently operates at speeds significantly slower than the core network. Serialization delay, or the time it takes to transmit all bits of a packet from first to last, can become a significant component of IP packet Transfer Delay (IPTD, referred to herein as “delay”) at access network speeds. For a constant connection speed, the serialization delay of a packet is proportional to its size, so if the traffic contains variable packet sizes, serialization delay will also contribute to jitter (or IP packet Delay Variation (IPDV)). Some access technologies (for example, wireless access networks) can rapidly adapt to changing transmission path loss and noise conditions by changing the transmission rate and/or changing the allocated part of the bandwidth used by a particular subscriber. These changes, however, cause variation in serialization delay and contribute to jitter.

Channel sharing protocols such as Time Division Multiple Access (TDMA) and Time Division Duplexing (TDD) add to both delay and jitter as transceivers wait their turn to send data. Many access technologies use some form of error correction to reduce the error rate on noisy channels. In addition, interleaving of data may be enabled to maximize the effectiveness of the error correction. Both of these techniques introduce delay. Some access technologies make use of local retransmission to reduce errors on noisy channels. Packets for which data must be retransmitted are delayed more than other packets, adding to jitter. Queuing backups add to both delay and jitter in both the access and core networks. Due to the lower data rates



involved, queues in the “last mile” contribute a larger share to the overall network delay than do queues in the core for similar levels of congestion. For instance, the servicing time required for a single 1500-byte packet is 12 ms at 1 Mbps, but only 12  $\mu$ s at 1 Gbps.

The way in which delay can affect the quality of a user’s experience varies, depending on the particular service. Users can tolerate much less delay in voice or videoconferencing, for example, than streaming of movies or audio (where buffering can minimize the adverse effects of delay). And even where relatively slow overall response time can be tolerated in a service like web-surfing, in light of the number of “turns” required to download a webpage – some 40 on average – the effect of the access connection delay gets multiplied so that the user experience of a slow webpage loading becomes intolerable, no matter how fast the “download speed” is for the access network.<sup>9</sup> While user experience for some applications such as web surfing can be improved via techniques like spoofing on high latency networks, these techniques cannot improve the more fundamental quality issues that arise with real time applications like VoIP or videoconferencing. In addition, for some services, such as voice or gaming, significant variability in the delay – or jitter – will affect the user experience. Thus, simply prescribing a

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<sup>9</sup> Most web pages are composed of a number of objects, including text, graphics, and applets. When a web page is accessed, the first object requested is the base file for the page. That file provides directions for accessing other objects. Some of those objects may point to yet other objects. Each object must be requested with a separate HTTP “Get” command and retrieved via a TCP connection. There are limits in most consumer operating systems on how many concurrent TCP connections may be opened, so only so many objects can be downloaded in parallel. Each HTTP command, and each TCP connection, generates at least one sequence of messages between the client and server that requires receipt of the previous message before the response can be transmitted. Each of these sequences requires a round trip through the network, or a “turn,” to complete. As a result of this multiplier effect, where the round trip delay is above 100 ms, even infinite download speed will not reduce the average webpage download time to less than 4 seconds – the limit for “acceptable” downloading time under Broadband Forum, Technical Report TR-126, “Triple-play Services Quality of Experience (QoE) Requirements,” 13 December 2006. *See*, ADTRAN White Paper, *supra* n. 8, at pp. 9-15. At the 4 Mbps download speed prescribed by the Commission for CAF Phase II, delay above 50 ms will generally result in webpages loading in more than the 4 second acceptable level.



minimum download speed for the unsubsidized competitors, without also specifying parameters for latency, could result in users being relegated to unacceptable “broadband” service.

Various standards bodies have developed guidelines for latency/delay for different types of services. Below is a compilation of the latency standards set by ITU, the 3<sup>rd</sup> Generation Partnership Project (3GPP), and the Broadband Forum (BF).

### Response time requirements

Application	One way delay	Sources <sup>10</sup>
Conversational voice	< 150 ms preferred < 400 ms limit	ITU G.1010, 3GPP TS 22.105
	< 150 ms	BBF TR-126
Videophone	< 150 ms preferred < 400 ms limit	ITU G.1010, 3GPP TS 22.105
Interactive games	< 200 ms	ITU G.1010, BBF TR-126
	< 75 ms preferred	3GPP TS 22.105
	< 50 ms (objective)	BBF TR-126
Web browsing	< 2 s/page preferred < 4 s/page acceptable	ITU G.1010, BBF TR-126
	< 4 s/page	3GPP TS 22.105

In addition, the ITU has adopted a Recommendation to define performance objectives for the network that complement the user-driven performance requirements described in the Table above.<sup>11</sup> These guidelines are based upon Quality of Service Classes (QoS), and address delay and jitter. QoS classes 0 and 1 are recommended for “real time, jitter sensitive, high interaction” applications such as conversational voice, videophone, and interactive games. Within that

<sup>10</sup> ITU Recommendation G.1010, “End-user multimedia QoS categories,” November 2001; 3GPP TS 22.105 V9.0.0, “3<sup>rd</sup> Generation Partnership Project; Technical Specification Group Services and System Aspects; Service aspects; Services and service capabilities (Release 9),” December 2008; and Broadband Forum, Technical Report TR-126, “Triple-play Services Quality of Experience (QoE) Requirements,” 13 December 2006.

<sup>11</sup> ITU Recommendation Y.1541, “Network performance objectives for IP-based services,” February 2006.



application set, QoS class 0 is recommended for networks with “constrained routing and distance,” and QoS class 1 is recommended for networks with “less constrained routing and distances.” QoS class 5 is recommended for “traditional applications of default IP networks” such as web browsing. Other QoS classes are recommended for applications such as signaling and video streaming.

### **ITU Recommendation Y.1541 QoS class performance objectives**

Network performance parameter	Nature of network performance objective	QoS Classes					
		Class 0	Class 1	Class 2	Class 3	Class 4	Class 5 Unspecified
Delay	Upper bound on the mean IPTD	100 ms	400 ms	100 ms	400 ms	1 s	U
Jitter	Upper bound on the $1 \cdot 10^{-3}$ quantile of IPTD minus the minimum IPTD	50 ms	50 ms	U	U	U	U

U = Unspecified

In light of these various guidelines and recommendations, ADTRAN urges the Commission to specify that technologies used to satisfy CAF requirements must be capable of supporting a two-way delay in the access network of no more than 100 ms.

### ***Capacity/Usage***

The *Public Notice* also asks whether the Commission should specify a minimum usage allowance that would apply to the supported carrier under CAF Phase II, as well as in determining whether the unsubsidized competitor was offering “broadband” service so as to preclude that area from eligibility for support.<sup>12</sup> ADTRAN believes it makes sense to prescribe such a usage minimum, because service contract limits, just like technical constraints, could

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<sup>12</sup> *Public Notice* at ¶ 19.



preclude the customer from being able truly to reap the manifold benefits of “broadband.” Even if the broadband access network has the technical capability of delivering a true “broadband” experience, a customer limited by service contract to something less will only be getting that “second class” service, and thus will not be able to participate fully in the broadband connected nation.

ADTRAN endorses the methodology suggested in the *Public Notice* of deriving the minimum value based on the expected usage for critical activities relating to education, health, employment, e-commerce, and civic engagement. In light of the expected continued growth in usage, as well as the presumed desire of consumers to also use the broadband access for less-critical purposes such as entertainment, ADTRAN concurs in the *Public Notice*’s suggestion of no less than a 100 GB monthly minimum usage allowance.<sup>13</sup>

### ***Coverage***

ADTRAN additionally believes that in deciding whether an area is served by an unsubsidized broadband service provider, the Commission must take account of the ability of that service provider to offer a true broadband offering to customers throughout the territory to be excluded from CAF Phase II support. This is particularly important for broadband access service provided over wireless technologies, where the capabilities of the broadband access link

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<sup>13</sup> At the same time, ADTRAN suggests that the Commission commit to revisiting this analysis a few years into the future – at least with respect to prescribing the minimum usage allowance for any supported service -- because the activities thought to be critical could change, as well as the usage associated with such current or future activities.



may be limited by distance from the wireless tower and topography or other obstructions that affect the radio signals.<sup>14</sup>

Likewise, spectrum constraints could preclude a wireless broadband competitor from offering a true broadband experience to all of the businesses and residences in an area.<sup>15</sup> The amount of spectrum available to a wireless broadband service provider – whether fixed or mobile – will constrain the capacity/speed that can be provided. And where that capacity is shared amongst the wireless carrier’s customers, the total capacity must be divided to reflect the fact that many of the carrier’s customers will be trying to access that capacity during peak periods of demand. A wireless service provider could, in theory, increase the capacity available to subscribers by building additional towers to re-use the spectrum (or by acquiring additional spectrum). However, the intent of the Commission is to exclude from CAF Phase II support territories where “an unsubsidized competitor offers affordable broadband that meets the initial public interest obligations that we establish in this Order for CAF Phase I, i.e., speed, latency, and usage requirements,”<sup>16</sup> not to exclude areas where the unsubsidized carrier could provide broadband service by adding towers or acquiring additional spectrum, but has not yet elected to do so.

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<sup>14</sup> See, e.g., Waiver Request of CenturyLink in WC Docket No. 10-90, *et al.* (filed June 26, 2012) at pp. 10-11.

<sup>15</sup> *Id.* at pp. 8-9.

<sup>16</sup> *USF/ICC Transformation Order* at ¶ 170.



***The Determination of Whether an Unsubsidized Competitor is Offering “Broadband” Should be Based on Actual Measurements***

As discussed above, the territories to be excluded from CAF Phase II support are areas where an unsubsidized competitor is presently offering broadband service. And as ADTRAN explained, whether the service being offered qualifies as “broadband” should depend on Commission-prescribed standards for speed/throughput, latency, capacity/usage and coverage. ADTRAN also urges the Commission to require that determinations of whether the standards are met should be based on actual measurements, not simply theoretical capabilities. After all, subscribers will be able to enjoy the benefits of broadband only if the service they get actually performs consistent with the Commission-prescribed standards.

The Commission should thus insist on a consistent, robust and rigorous testing procedure to ensure that the service offered by the unsubsidized competitor conforms to the prescribed “standards” for broadband.<sup>17</sup> Of course, in establishing the testing requirements, the Commission need not “re-invent the wheel.” The Commission, working with a wide array of industry and academia representatives, has developed a testing program in conjunction with its Measuring Broadband America reports.<sup>18</sup> In addition, the Commission has encouraged the initiation of work in at least two organizations (the Broadband Forum and the Internet Engineering Task Force) to facilitate the measurement of broadband performance on a large scale. These efforts have provided and will continue to improve measurement processes capable

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<sup>17</sup> ADTRAN similarly would expect that carriers who receive support under CAF Phase II would have to perform similar robust and rigorous testing to demonstrate that the deployed services conform to the same “broadband standards.”

<sup>18</sup> 2013 Measuring Broadband America Report, March 2013, at pp. 15-18; Technical Appendix at pp. 12-32 (<http://data.fcc.gov/download/measuring-broadband-america/2013/Technical-Appendix-feb-2013.pdf> ).



of a consistent and accurate measure of whether the service offered by the unsubsidized competitor will allow the subscribers to reap the benefits of broadband. Without a consistent and robust measurement process, service providers could possibly game the system to certify compliance when “real world” performance was not actually sufficient for a subscriber to enjoy the benefits of broadband. It would be as if carmakers could devise their own test for determining mileage by measuring performance only when the car was going downhill with a tailwind.

The *Public Notice* also seeks comment on the timing when the measurement should occur:

We seek comment on whether determinations in the challenge process of whether an unsubsidized competitor meets the specified service requirements (speed, latency, usage, price) should be based on a company’s offerings as of June 30, 2012, or some later date. Alternatives could include the date on which we release an order adopting the forward looking model, or 30 days prior to that release. We seek comment on these alternatives.<sup>19</sup>

ADTRAN does not believe that it is necessary to specify a single date for all service providers to undertake the necessary measurements and/or certifications. The timing for establishing that the “standards” for broadband have been met is not critical, so long as the measurements are consistent with the uniform processes discussed above.

Finally, the *Public Notice* proposes the use of a rebuttable presumption for cable broadband service providers offering the minimum speeds that such service would qualify as “broadband” so as to exclude that area from CAF Phase II support, subject to a challenge process.<sup>20</sup> The Public Notice would not provide a similar presumption for wireless broadband

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<sup>19</sup> *Public Notice* at ¶ 12.

<sup>20</sup> *Public Notice* at ¶ 11. Although the *Public Notice* raised this issue with respect to cable broadband, it should be possible to adopt a similar presumption for DSL and fiber-based technologies.



service providers.<sup>21</sup> ADTRAN concurs with this proposal, because capacity constraints, propagation characteristics, latency issues (certainly in the case of Geostationary satellites) and other limits make it problematical for wireless to offer service that would allow consumers to reap all of the benefits of “broadband.” Thus, in any challenge, the burden would fall on the challenging service provider in the case of cable broadband, but not in the case of wireless “broadband.” As President Reagan said of the Russians – “Trust, but verify.” And as ADTRAN explained above, the verification should be in the form of a consistent, robust and rigorous testing process.

### ***Conclusion***

The CAF Phase II program should play an important role in bringing broadband service to the majority of the remaining areas unserved by broadband. However, in order for the consumers in those areas to truly enjoy the benefits of broadband, the Commission cannot exclude areas that are presently served by “almost, but not quite” broadband. By establishing criteria for “broadband” as suggested by ADTRAN herein, and also requiring the use of

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<sup>21</sup> *Id.*



established testing procedures to ensure that the services meet those criteria, the Commission will best serve the public interest.

Respectfully submitted,

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